Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1. (currently amended) A broadcast system, comprising:

one or more information additive code transmitters configured to broadcast output symbols generated from information additive codes to ~~one or more~~ a plurality of information additive code receivers, each information additive code transmitter comprising an encoder configured to receive source data and to produce the output symbols ~~information additive codes~~ therefrom, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data; and

~~one or more~~ the plurality of information additive code receivers configured to receive the output symbols ~~information additive code~~ broadcast by ~~at least one of~~ the one or more information additive code transmitters, each information additive code receiver comprising a decoder configured to substantially reconstruct a copy of the source data from the received output symbols ~~information additive codes~~; wherein the output symbols ~~information additive code~~ transmitted to the ~~one or more~~ plurality of information additive code receivers at any particular time is independent of the output symbols ~~information additive code~~ previously received by each of the ~~one or more~~ plurality of information additive code receivers, wherein when an amount of non-redundant output symbols ~~information additive code~~ sufficient to reconstruct the source data has been received at each of the plurality of information additive code receivers, the plurality of information additive code receivers reconstruct the source data independent of when, and from which of the one or more information additive code transmitters the output symbols ~~information additive code was~~ were received.

Claim 2. (previously presented) The broadcast system of claim 1, wherein the encoder comprises a single-stage encoder, and wherein the decoder comprises a single-stage decoder.

Claim 3. (previously presented) The broadcast system of claim 1, wherein the encoder comprises a multistage encoder, and wherein the decoder comprises a multistage decoder.

Claim 4. (original) The broadcast system of claim 1, wherein the information additive code transmitter further comprises a protocol converter coupled to the encoder, and wherein the information additive code receiver comprises a protocol converter coupled to the decoder.

Claim 5. (currently amended) The broadcast system of claim 1, wherein at least one of the plurality of ~~one or more~~ information additive code receivers further comprises means for receiving data via a secondary channel.

Claim 6. (original) The broadcast system of claim 1, wherein the coded transmission is communicated via a satellite link.

Claim 7. (original) The broadcast system of claim 1, wherein the coded transmission is communicated via a terrestrial wireless link.

Claim 8. (original) The broadcast system of claim 1, wherein the coded transmission is communicated via an electrical or optical cable.

Claim 9. (currently amended) The broadcast system of claim 1, wherein the encoder further comprises:

a cache unit having an input coupled to receive segments of source data and an output coupled to the encoder, the cache unit configured to store ~~source~~ segments of source data and to output segments of source data to the encoder upon receipt of a command; and

a control unit coupled to the cache unit and to the encoder, the control unit configured to output the command signal to the cache unit.

Claim 10. (previously presented) The broadcast system of claim 9, wherein the cache unit further comprises:

an upload unit having an input coupled to receive segments of source data, a command port coupled to the control unit, and an output; and

two or more segment buffers having an input coupled to the upload unit and an output coupled to the encoder.

Claim 11. (original) The broadcast system of claim 10, wherein the encoder comprises two or more encoders each having an input coupled to the output of the two or more segment buffers.

Claim 12. (currently amended) The broadcast system of claim 1, wherein the one or more information additive code ~~transmitter~~ transmitters further ~~comprises~~ comprise a transmit module coupled to the encoder, the transmit module operable to modulate the ~~information additive code~~ output symbols onto a carrier signal, the carrier signal modulated with the ~~information additive code~~ output symbols comprising a coded transmission.

Claim 13. (currently amended) The broadcast system of claim 12, wherein the plurality of information additive code ~~receiver~~ receivers further ~~comprises~~ comprise a receive module coupled to the decoder, the receive module operable to demodulate the coded transmission, thereby extracting the ~~information additive code~~ output symbols, the receive module supplying the extracted ~~information additive code~~ output symbols to the decoder.

Claim 14. (currently amended) An information additive code transmitter, comprising:

an encoder configured to receive source data and to produce output symbols generated from the source data using information additive code ~~therefrom~~, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data; and

a transmit module coupled to the encoder and configured to broadcast the output symbols ~~information additive code~~ to a plurality of information additive code receivers; wherein the ~~information additive code~~ output symbols transmitted to the plurality of information additive code receivers at any particular time is independent of the ~~information additive code~~ output symbols previously received by each of the plurality of information additive code receivers, wherein when an amount of non-redundant ~~information additive code~~ output symbols sufficient to reconstruct the source data has been received, the information additive code receivers reconstruct the source data independent of when, or in what order the ~~information additive code~~ output symbols ~~was~~ were received.

Claim 15. (currently amended) The information additive code transmitter of claim 14, wherein the encoder comprises a single stage encoder, further comprising:

an input symbol generator configured to receive the source data and to provide an ordered sequence of input symbols in response;

a key generator operable to output an encoding key for each input symbol in the ordered sequence; and

a symbol encoder coupled to the input symbol generator and the key generator, the symbol encoder operable to receive the ordered sequence of input symbols and the encoding key for each input symbol, and in response produce the output symbols ~~comprising the information additive code~~.

Claim 16. (currently amended) The information additive code transmitter of claim 14, wherein the encoder comprises a multistage encoder, comprising:

an input symbol generator having an input for receiving the source data and an output for providing an ordered sequence of input symbols in response;

a static key generator configured to provide a sequence of static encoding keys corresponding to the sequence of input symbols;

a dynamic key generator configured to provide a sequence of dynamic encoding keys corresponding to the sequence of input symbols; and

a symbol encoder coupled to the input symbol generator, the static key generator, and the dynamic key generator, the symbol encoder comprising:

a static encoder configured to receive the ordered sequence of input symbols and the corresponding sequence of static encoding keys, the static encoder producing a sequence of redundant symbols in response; and

a dynamic encoder coupled to the static encoder and configured to receive the sequence of redundant symbols and the sequence of dynamic encoding keys, the dynamic encoder producing a sequence of output symbols in response~~, the output symbols comprising the information additive code~~.

Claim 17. (previously presented) The information additive code transmitter of claim 14, wherein the encoder comprises:

a cache unit having an input coupled to receive segments of source data and an output coupled to the encoder, the cache unit configured to store segments of source data and to output segments of source data to the encoder upon receipt of a command; and

a control unit coupled to the cache unit and to the encoder, the control unit configured to output the command signal to the cache unit.

Claim 18. (previously presented) The information additive code transmitter of claim 17, wherein the cache unit further comprises:

an upload unit having an input coupled to receive segments of source data, a command port coupled to the control unit, and an output; and

two or more segment buffers having an input coupled to the upload unit and an output coupled to the encoder.

Claim 19. (original) The information additive code transmitter of claim 18, wherein the encoder comprises a respective two or more encoders each having an input coupled to the output of the two or more segment buffers.

Claim 20. (currently amended) The information additive code transmitter of claim 14, wherein the encoder comprises:

means for receiving a first segment of a live data stream, the first segment S_0 containing first segment data;

means for applying a forward error correction algorithm to the first segment data to produce a corresponding transmit block T_0;

means for dividing the T_0 block into two or more T_0 subblocks, wherein each of the two or more T_0 subblocks comprise substantially distinct FEC-encoded first segment data;

means for transmitting a first of the two or more T_0 subblocks to a receiver on a first main subchannel;

means for receiving a second segment of the live data stream, the second segment S_1 containing second segment data;

means for applying a forward error correction algorithm to the second segment data to produce a transmit block T_1;

means for dividing the T_1 block into two or more T_1 subblocks, wherein each of the two or more T_1 subblocks comprise substantially distinct FEC-encoded second segment data;

means for transmitting substantially concurrently, the second of the two or more T_0 subblocks on the first main subchannel and a first of the two or more T_1 subblocks on a second main subchannel; and

means for transmitting substantially concurrently, the first T_0 subblock on a first booster subchannel, and the first T_1 subblock on a second booster subchannel, wherein the second T_0 subblock, the first T_1 subblock, the first T_0 subblock, and the first T_1 subblock are all transmitted substantially concurrently, wherein the T_0, T_1, and T_2 subblocks comprise the ~~information additive code~~ output symbols.

Claim 21. (currently amended) The information additive code transmitter of claim 14, further comprising a protocol converter coupled to the encoder and configured to convert the ~~information additive code~~ output symbols from a first protocol to a second protocol.

Claim 22. (original) The information additive code transmitter of claim 21, wherein the first protocol is an IP protocol and the second protocol is a satellite broadcasting system protocol.

Claim 23. (original) The information additive code transmitter of claim 21, wherein the first protocol is an IP protocol and the second protocol is a terrestrial broadcasting system protocol.

Claim 24. (currently amended) The information additive code transmitter of claim 14, further comprising a transmit module coupled to the encoder, the transmit module operable to modulate the ~~information additive code~~ output symbols onto a carrier signal, the carrier signal modulated with the ~~information additive code~~ output symbols comprising a coded transmission.

Claim 25. (original) The information additive code transmitter of claim 24, wherein the carrier signal comprises a satellite uplink, cross-link, or down link signal.

Claim 26. (original) The information additive code transmitter of claim 24, wherein the carrier signal comprises a terrestrial broadcast signal.

Claim 27. (currently amended) An information additive code receiver, comprising:

a receive module configured to receive output symbols generated from information additive code, wherein the output symbols are broadcast from one or more information additive code transmitters~~, wherein the received information additive code comprises a plurality of output symbols~~, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data, wherein the ~~information additive code~~ output symbols received from the one or more information additive code transmitters at any particular time is independent of the ~~information additive code~~ output symbols previously received; and

a decoder coupled to the receive module and configured to decode the received output symbols into source data, wherein when an amount of non-redundant ~~information additive code~~ output symbols sufficient to reconstruct the source data has been received, the receiver module reconstructs the source data independent of when, or from which of the one or more information additive code transmitters the ~~information additive code~~ output symbols ~~was~~ were received.

Claim 28. (currently amended) The information additive code receiver of claim 27, wherein the decoder comprises a single stage decoder, further comprising:

a key regenerator coupled to the receive module, the key regenerator configured to receive the output symbols, and to produce respective decoding keys in response;

a symbol decoder coupled to the receive module and to the key regenerator, the key regenerator operable to receive the output symbols and the decoding keys, and in response produce the input symbols; and

an input file reassembler coupled to the symbol decoder and configured to receive and reassemble the input symbols into source data.

Claim 29. (previously presented) The information additive code receiver of claim 27, wherein the decoder comprises a multistage decoder, further comprising:

a dynamic key regenerator coupled to the receive module, and configured to receive the output symbols and to produce respective dynamic keys in response;

a symbol decoder, further comprising:

a) a dynamic decoder coupled to the dynamic key regenerator and the received module, the dynamic decoder configured to receive the output symbols and the dynamic keys, and to produce a first set of input symbols and redundant symbols in response; and

b) a static decoder coupled to the dynamic decoder and configured to receive the redundant symbols, the first set of input symbols, and static keys, the static decoder producing a second set of input symbols in response; and

c) an input file reassembler coupled to the symbol decoder and configured to receive and reassemble the first and second set of input symbols into source data.

Claim 30. (original) The information additive code receiver of claim 27, wherein each of the plurality of output symbols is associated with one or more input symbols, wherein an output symbol associated with one symbol comprises an output symbol of degree, wherein an output symbol associated with two or more source symbols comprises an output symbol of degree two or more, and wherein at least one source symbol is marked as active, the information additive code receiver, further comprising:

means for selecting one of the active source symbols that is associated with an output symbol of degree two or higher; and

means for deactivating the selected source symbol that is associated with the output symbol of degree two or higher.

Claim 31. (original) The information additive receiver of claim 30, further comprising:

means for identifying at least one output symbol which is associated with only one active source symbol;

means for recovering the active source symbol associated with the identified output symbol; and

means for determining that no output symbol remains which is associated with only one active source symbol.

Claim 32. (currently amended) The information additive code receiver of claim 27, further comprising a protocol converter having an input coupled to the receive module and an output coupled to the decoder, the protocol converter configured to convert the received ~~information additive code~~ output symbols from a first protocol to a second protocol.

Claim 33. (original) The information additive code receiver of claim 32, wherein the first protocol is a satellite broadcasting system protocol and the second protocol is an IP protocol.

Claim 34. (original) The information additive code receiver of claim 32, wherein the first protocol is a terrestrial broadcasting system protocol and the second protocol is an IP protocol.

Claim 35. (original) The information additive code receiver of claim 27, wherein the received output symbols are modulated onto a carrier signal prior to transmission, the output symbol modulated carrier signal comprising a coded transmission, the receive module further comprising a demodulator operable to demodulate the coded transmission, thereby extracting the output symbols, the receive module supplying the extracted output symbols to the decoder.

Claim 36. (original) The information additive code transmitter of claim 35, wherein the carrier signal comprises a satellite uplink, cross-link, or down link signal.

Claim 37. (original) The information additive code transmitter of claim 35, wherein the carrier signal comprises a terrestrial broadcast signal.

Claim 38. (currently amended) A method for communicating ~~information additive code~~s output symbols from one or more transmitters to one or more receivers, the method comprising:

encoding source data into a plurality of output symbols using information additive code~~, the information additive code comprising a plurality of output symbols~~, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data;

transmitting the ~~information additive code~~ output symbols to ~~one or more~~ a plurality of information additive code receivers from one or more sources;

receiving ~~information additive code~~ output symbols from the one or more sources, wherein the ~~information additive code~~ output symbols received from the one or more sources at

any particular time is independent of ~~the information additive code~~ which output symbols were previously received, wherein when an amount of non-redundant ~~information additive code~~ output symbols sufficient to reconstruct the source data has been received, the one or more information additive code receivers reconstruct the source data independent of when, or in what order the ~~information additive code~~ output symbols ~~was~~ were received; and

decoding the ~~information additive code~~ output symbols substantially into a copy of the source data.

Claim 39. (currently amended) The method of claim 38, wherein encoding source data to ~~information additive code~~ output symbols comprises:

arranging the source data into an ordered sequence of input symbols; and

generating, from the ordered sequence of input symbols, a respective sequence of output symbols~~, the respective sequence of output symbols comprising the information additive code~~.

Claim 40. (currently amended) The method of claim 38, wherein decoding the ~~information additive codes~~ output symbols comprises:

generating a plurality of decoding keys corresponding to the received plurality of output symbols ~~comprising the received information additive code~~; and

generating substantially, from the output symbols and the decoding keys, a copy of the source data.

Claim 41. (currently amended) The method of claim 38, wherein transmitting comprises transmitting the ~~information additive code~~ output symbols via a satellite up link, cross-link, down link or by a terrestrial link.

Claim 42. (currently amended) The method of claim 38, wherein receiving comprises receiving the ~~information additive code~~ output symbols via a satellite up link, cross-link, down link or by a terrestrial link.

Claim 43. (currently amended) The method of claim 38, further comprising converting, prior to transmission, the protocol of the ~~information additive code~~ output symbols to a broadcast protocol.

Claim 44. (currently amended) The method of claim 38, further comprising converting, prior to decoding, the protocol of the received ~~information additive code~~ output symbols.

Claim 45. (currently amended) A method for broadcasting output symbols generated from information additive code, comprising:

encoding source data into a plurality of output symbols ~~comprising~~ using information additive code, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data, wherein the ~~information additive code~~ output symbols transmitted any particular time is independent of the ~~information additive code~~ output symbols previously transmitted; and

transmitting the ~~information additive code~~ output symbols to one or more a plurality of information additive code receivers, wherein when an amount of non-redundant ~~information additive code~~ output symbols sufficient to reconstruct the source data has been received, the plurality of information additive code receivers reconstruct the source data independent of when, or in what order the ~~information additive code~~ output symbols ~~was~~ were received.

Claim 46. (original) The method of claim 45, wherein encoding source data comprises:

arranging the source data into an ordered sequence of input symbols; and

generating, from the ordered sequence of input symbols, a respective sequence of output symbols.

Claim 47. (previously presented) The method of claim 46, wherein generating a respective sequence of output symbols comprises:

generating a sequence of encoding keys corresponding to the sequence of input symbols; and

generating, from the respective sequences of the input symbols and the encoding keys, the respective sequence of output symbols.

Claim 48. (previously presented) The method of claim 46, wherein generating a respective sequence of output symbols comprises:

generating a sequence of static encoding keys corresponding to the sequence of input symbols;

generating a sequence of dynamic encoding keys corresponding to the sequence of input symbols;

generating, from respective sequences of the input symbols and the static encoding keys, a respective sequence of redundant symbols; and

generating, from respective sequences of the input symbols, dynamic encoding keys, and redundant symbols, a respective sequence of output symbols.

Claim 49. (currently amended) A method for receiving broadcast ~~information additive codes~~ output symbols ~~information additive codes~~, comprising:

receiving ~~information additive code~~ a plurality of output symbols broadcast from one or more of a plurality of sources, the plurality ~~received information additive code comprising a plurality~~ of output symbols generated from information additive code, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data wherein the ~~information additive code~~ plurality of output symbols received at any particular time is independent of ~~the information additive code~~ which of the plurality of output symbols was previously received; and

wherein when an amount of non-redundant ~~information additive code~~ output symbols sufficient to decode the source data has been received, decoding the plurality of output symbols into source data, wherein the decoding is performed independent of when, or from

which of the one or more information additive code sources the ~~information additive code~~ plurality of output symbols ~~was~~ were received.

Claim 50. (original) The method of claim 49, wherein the plurality of output symbols comprises a sequence of output symbols, and wherein decoding the output symbols comprises:

generating, from the sequence of output symbols, a respective sequence of decoding keys;

generating from the sequence of output symbols and the respective sequence of decoding keys, a respective sequence of input symbols; and

reassembling the respective sequence of input symbols into the source data.

Claim 51. (original) The method of claim 49, wherein the plurality of output symbols comprises a sequence of output symbols, and wherein decoding the output symbols comprises:

generating, from the sequence of output symbols, a respective sequence of dynamic decoding keys;

generating a respective sequence of static decoding keys;

generating, from the respective sequences of output symbols, the dynamic decoding keys, and the static encoding keys, a respective sequence of input symbols; and

reassembling the respective sequence of input symbols into the source data.

Claim 52. (not entered)

Claim 53. (currently amended) A method of generating a coded transmission comprising output symbols modulated onto a carrier signal and broadcast to a plurality of receivers, the method comprising:

encoding source data into output symbols using information additive code, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data; and

modulating the output symbols onto a carrier signal, the modulated carrier signal comprising the coded transmission, wherein the output symbols modulated onto the carrier signal at any particular time are independent of which of the output symbols were previously received by the plurality of receivers ~~modulated onto the carrier signal~~, wherein when an amount of non-redundant output symbols sufficient to reconstruct the source data have been received, the receivers reconstruct the source data independent of when, or which of the output symbols, or in what order the output symbols were received.

Claim 54. (previously presented) The method of claim 53, wherein the process of encoding the source data into output symbols comprises:

arranging the source data into an ordered sequence of input symbols; and

generating, from the ordered sequence of input symbols, a respective sequence of output symbols.

Claim 55. (previously presented) The method of claim 54, wherein generating a respective sequence of output symbols comprises:

generating a sequence of encoding keys corresponding to the sequence of input symbols; and

generating, from the respective sequences of the input symbols and the encoding keys, the sequence of output symbols.

56. (previously presented) The method of claim 54, wherein generating a respective sequence of output symbols comprises:

generating a sequence of static encoding keys corresponding to the sequence of input symbols;

generating a sequence of dynamic encoding keys corresponding to the sequence of input symbols;

generating, from respective sequences of the input symbols and the static encoding keys, a respective sequence of redundant symbols; and

generating, from respective sequences of the input symbols, dynamic encoding keys, and redundant symbols, the sequence of output symbols.

Claim 57. (currently amended) A computer program product, on a computer readable storage medium, for broadcasting ~~information additive code~~ output symbols, the computer program product comprising:

instruction code to encode source data into output symbols ~~comprising~~ using information additive code, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols derived from the source data; and

instruction code to transmit the ~~information additive code~~ output symbols to a plurality of ~~one or more~~ information additive code receivers, wherein the ~~information additive code~~ output symbols when transmitted to the plurality of ~~one or more~~ information additive code receivers is independent of ~~the information additive code~~ which output symbols were previously ~~transmitted~~ received by the plurality of information additive code receivers, wherein when an amount of non-redundant output symbols sufficient to reconstruct the source data have been received, the plurality of information additive code receivers reconstruct the source data independent of when, or which non-redundant output symbols, or in what order the output symbols were received.

Claim 58. (original) The computer program product of claim 57, wherein the instruction code to encode the source data into output symbols comprises:

instruction code to arrange the source data into an ordered sequence of input symbols; and

instruction code to generate a respective sequence of output symbols from the ordered set of input symbols.

Claim 59. (previously presented) The computer program product of claim 58, wherein the instruction code to generate a respective sequence of output symbols comprises:

instruction code to generate a sequence of encoding keys corresponding to the sequence of input symbols; and

instruction code to generate, from the respective sequences of the input symbols and the encoding keys, the sequence of output symbols.

Claim 60. (previously presented) The computer program product of claim 58, wherein the instruction code to generate a respective sequence of output symbols comprises:

instruction code to generate a sequence of static encoding keys corresponding to the sequence of input symbols;

instruction code to generate a sequence of dynamic encoding keys corresponding to the sequence of input symbols;

instruction code to generate, from respective sequences of the input symbols and the static encoding keys, a respective sequence of redundant symbols; and

instruction code to generate, from respective sequences of the input symbols, dynamic encoding keys, and redundant symbols, the sequence of output symbols.

Claim 61. (currently amended) A computer program product, on a computer readable storage medium, for receiving broadcast ~~information additive codes~~ output symbols, the computer program product comprising:

instruction code to receive a plurality of output symbols ~~comprising~~ generated from source data using the information additive code, wherein the information additive code is such that a number of possible output symbols can be independent of a number of input symbols

derived from the source data, the ~~information additive codes~~ output symbols broadcast from one or more sources; and

instruction code to decode the received output symbols into source data, wherein the ~~information additive codes~~ output symbols, when received, ~~is~~ are independent of ~~information additive codes~~ which output symbols were previously received, wherein when an amount of non-redundant output symbols sufficient to decode the source data have been received, the instruction code to decode the received output symbols decodes the output symbols independent of when, which of the output symbols, ~~or~~ and in what order the output symbols were received.

Claim 62. (original) The computer program product of claim 61, wherein the received output symbols comprise a sequence of output symbols, and wherein the instruction code to decode the output symbols comprises:

instruction code to generate, from the sequence of received output symbols, a respective sequence of decoding keys;

instruction code to generate from the sequence of received output symbols and the respective sequence of decoding keys, a respective sequence of input symbols; and

instruction code to reassemble the sequence of input symbols into the source data.

Claim 63. (original) The computer program product of claim 61, wherein the received output symbols comprise a sequence of output symbols, and wherein the instruction code to decode the output symbols comprises:

instruction code to generate, from the sequence of received output symbols, a respective sequence of dynamic decoding keys;

instruction code to generate a respective sequence of static decoding keys;

instruction code to generate, from the respective sequences of received output symbols, the dynamic decoding keys, and the static encoding keys, a respective sequence of input symbols; and

instruction code to reassemble the sequence of input symbols into the source data.